REMARKS

Claims 1-58 are pending in the application.

Claims 1-6, 8, 10-14, 16, 18-31, 34, 35, 38-40, 42, 44, 45, 47, 49, 50, 52, 54, 55, and 57 have been rejected.

Claims 48, 51 and 56 have been objected to.

Claims 41, 44-47, 49, 53-55, 57, and 58 have been amended.

Applicants acknowledge and thank the Examiner for the indication that Claims 7, 9, 15, 17, 32-33, 36-37, 41, 43, 46, 48, 51, 53, 56, and 58 would be allowable if rewritten and the 35 U.S.C. § 112 para. 2 rejection addressed. At this time, in light of the discussion presented below, Applicants decline to rewrite these claims as suggested, but reserve the right to do so in the future.

Rejection of Claims under 35 U.S.C. § 112

Claims 1-43, 46, 52-53, and 57-58 stand rejected under 35 U.S.C. § 112 para. 2 as being indefinite "for failing to particularly point out and distinctively claim the subject matter which the applicant regards as the invention."

(i) Claims 1-43, 46, 52-53, and 57-58: The Office Action rejects these Claims for the stated reason that "it is unclear how the structure of the so-called 'non-standard SONET frame' or 'transport gap other than the standard transport gap' is different from that of a standard STS-9 frame." Office Action, p.2. The Office Action goes on to state that "frame 204 or 206 is in fact equivalent to a row of the conventional standard STS-9 SONET frame because the latter also contains 27 overhead bytes followed by 783 bytes of payload." Office Action, p.3. Applicants respectfully submit that the frames disclosed

in the Application at 204 and 206 are structurally very different from a standard STS-9 frame and therefore respectfully traverse this rejection.

Figure 2 of the present application illustrates the difference between the structure of non-standard frames 204 and 206 and the structure of a standard SONET frame such as that illustrated in 108 and 110. In addition, the Application specifically refers to, and incorporates by reference, U.S. Application Serial No. 09/477,166 ("the '166 Application") for details on the structure of a non-standard SONET frame.[1] *See* Application, p.4. The figures and the '166 Application illustrate that the non-standard frame has been rearranged so that all of the overhead is in one location within the frame, ahead of all the payload data, rather than arranged in columns at the head of each row of payload as overhead would be arranged in a standard SONET frame.. Further, much of the overhead found in a standard SONET frame has been removed (e.g., all overhead bytes other than H1, H2, H3, H4, and A1 and A2) and bytes corresponding to the removed overhead have been rearranged into a relock region at the beginning of the non-standard SONET frame. This relock region is configured to be transition rich in order to aid in reacquiring phase lock at each stage of the node through which the frame passes (e.g., a switch such as that described in the '166 Application). If that relock region were not present, as in the suggested standard STS-9 frame where the first few bytes of a frame contain A1 and A2 data, the frame would not be usable should a device manipulating the frame not be able to reacquire phase lock for several bytes into the frame, thereby losing at least those first several bytes.

[1] Should the Examiner wish to be provided with a copy of U.S. Pat. App. Serial No. 09/477,166, Applicants will provide such a copy upon request.

As a further aid in distinguishing the non-standard frames discussed in the claims of the present invention from the STS-9 frame presented in the Office Action, Applicants believe it is instructive to explain a rationale for restructuring the frames a presented in the Application and as is also described in the '166 Application. The node 100 illustrated in Figure 1 of the Application can be part of a rearrangeably non-blocking switch such as that disclosed in the '166 Application. Rearrangeably non-blocking switches allow idle pairs of input and output ports to be connected after possibly rearranging some connections already existing in the switch (i.e., reconfiguring the switching matrix). Thus, information carried on some or all of the existing connections may experience errors during reconfiguration of the switching matrix. A desire to avoid data disruption on the existing connections drives a need to provide rearrangement in the switch without error. Reconfiguration of the SONET frame to the non-standard SONET frame of 204, 206 and Figure 16 of the '166 Application is driven by this need for errorless rearrangement.

Errorless rearrangement can be performed in a switching matrix when no live data is being transmitted in the data stream. Switching can be performed without disturbing the connections already configured in the switching matrix. To provide a larger window of time during which the switching matrix can be switched, the incoming data frames are rearranged to increase the amount of time that no live data is being transmitted by consolidating bytes that would be used for overhead in a standard SONET frame as a relock region. In the case of a switch using an optical backplane, this also allows more time for various components of the system to reacquire phase lock (e.g., clock/data recovery units situated along the signal path).

The period in which switching and relocking can occur can be thought of in terms of a wave front traveling through the signal path of router. A point at which a switching and relocking may occur within the data stream is actually a given number of bit times. Such a "window" in the data stream travels through the router, with live data to either side, and is sequentially encountered by each element along the signal path through the router. During the time between when the beginning of the window and the end of the window is encountered by a given element, the element may switch, relock, or otherwise experience a disruption in the data stream without the disruption of the live data being carried. By rearranging the data frames to place a large segment of relock data at the beginning of the frame for relocking (e.g., 204 and 206), the length of the switching "window" is increased, thereby decreasing the opportunity of data loss. A standard SONET frame does not offer such an increase in the "window" size because the A1 and A2 bytes are at the beginning of the frame and overhead is otherwise distributed throughout the frame; therefore data loss in such a standard SONET frame due to switching, relock, or data disruption will occur in a rearrangeably non-blocking switch. This is especially true since the loss of the leading overhead bytes of a standard SONET frame would render that frame and its data unusable.

As a further distinction between a standard SONET frame and the non-standard frames 204, 206, and Figure 16 of the '166 Application, much of the overhead bytes in a standard SONET frame have been removed. Without such overhead bytes, a standard SONET frame is not usable by the various types of SONET equipment (e.g., line-terminating equipment, path-terminating equipment, and the like).

As described in the specification, a "transport gap" represents "a gap in the data being transported." *See* Application, p.3. As discussed above, and illustrated in frames

204 and 206, such a gap in data being transported has been consolidated in one location in these non-standard frames. The transport gap is presented by the relock bytes, A1/A2 bytes, and H1, H2, and H3 bytes included in the first row of frames 204 and 206. Subsequently, all the data is payload. This is different from a standard STS-9 frame, wherein the overhead is distributed throughout the frame.

Applicants therefore respectfully submit that the frames illustrated as 204 and 206 are not the same as a standard STS-9 frame and that the transport gap discussed in the claims is not the same as that of a standard STS-9 frame. Applicants also assert that since the '166 Application is incorporated by reference in the original Application, that the Application does teach a form of non-standard SONET frame other than that illustrated as frames 204 and 206, contrary to the position of the Office Action. For these reasons, Applicants respectfully assert that the terms "non-standard SONET frame" and "transport gap other than the standard transport gap" are definite.

For these reasons, Applicants submit that the rejections under 35 U.S.C. § 112 para. 2 as to Claims 1-43, 46, 52-53, and 57-58 have been responded to and traversed, and therefore request that those same rejections be reconsidered and withdrawn.

(ii) Claims 31-38: The Office Action rejects Claims 31-38 for the stated reason that "it is unclear what is meant by 'the number of columns present in a non-standard SONET transport gap.'" Applicants respectfully submit that the specification of the present Application in light of the discussion above reflects the meaning of this phrase.

As described in the specification, a "transport gap" represents "a gap in the data being transported." *See* Application, p.3. As discussed above, and illustrated in frames 204 and 206, such a gap in data being transported has been consolidated in one location

in these non-standard frames. The transport gap is presented by the relock bytes, A1/A2 bytes, and H1, H2, and H3 bytes included in the first row of frames 204 and 206. As illustrated, such a transport gap is 27 columns of the first row of frames 204 and 206.

For these reasons, Applicants submit that the rejections under 35 U.S.C. § 112 para. 2 as to Claims 31-38 have been responded to and traversed, and therefore request that those same rejections be reconsidered and withdrawn.

(iii) Claims 41, 46, 53, and 58: Claims 41, 46, 53, and 58 have been rejected for the stated reason that the phrase "'twenty-seven columns of data in size' is misleading because by default it would require 27 times 9 elements of transport overhead...." Applicants have amended Claims 41, 46, 53, and 58 to address this concern by specifying that the non-standard transport gap is "twenty-seven columns of one row of the non-standard SONET frame of data in size." For these reasons, Applicants submit that the rejections under 35 U.S.C. § 112 para. 2 as to Claims 41, 46, 53, and 58 have been addressed, and therefore request that those same rejections be reconsidered and withdrawn.

Rejection of Claims under 35 U.S.C. § 102

Claims 44, 49, and 54 stand rejected under 35 U.S.C. § 102 as being anticipated by Applicant Admitted Prior Art (AAPA). In response to the Office Action, and in the interests of economy, Applicants have amended their claims such that Applicants' Claims 44, 49, and 54 are clearly distinguishable over the purported AAPA. Further, dependent Claims 45, 47, 55, and 57 have been amended to remain consistent with the language of corresponding amended Claims 44, 49, and 54.

Applicant's amendments clarify that Claims 44, 49, and 54, and claims dependent thereto, are concerned with a non-standard SONET frame, as that term is described in the specification and discussed above. Applicants further note that the purported AAPA (Application, p.2, para. 2) does not disclose a non-standard SONET frame. In light of these amendments, Applicants respectfully submit that Claims 44, 49, and 54 are in condition for allowance and request Examiner's determination of same.

Rejection of Claims under 35 U.S.C. § 103

Claims 1-6, 8, 10-14, 16, 18-31, 34-35, 38-40, 42, 45, 47, 50, 52, 55, and 57 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA).

Claims 1-2, 18-19, and 25: Claims 1-2, 18-19, and 25 stand rejected for the stated reason that

> AAPA does not specifically teach keying a buffer status to a transport gap other than a standard SONET transport gap. However, since the only non-standard SONET frames illustrated in Applicant's Figs. 2-4 are in fact equivalent to a row of the standard STS-9 SONET frame, it is obvious to one of skill in the art that AAPA's keying technique could also be applied to the illustrated non-standard SONET frames because from the receiving buffer's or transmitting buffer's point of view, 9 consecutive non-standard SONET frames are equivalent to one STS-9 frame.

Office Action, pp.5-6. Applicants respectfully traverse this rejection in light of the above discussion related to the distinction between the non-standard SONET frames described in the present Application and a standard STS-9 SONET frame, and the corresponding transport gaps. In light of this distinction, the purported AAPA presented in the Office Action does not encompass the limitation related to "a transport gap other than a standard SONET transport gap." Further, as the above discussion also indicates, the purported

AAPA could not key to the transport gap of the disclosed non-standard frames due to the transport gap's structural differences with a standard SONET frame.

For these reasons, Applicants submit that Claims 1-2, 18-19, and 25, and all claims dependent thereon (including Claims 3, 11, 20, and 26), are distinguishable over the cited AAPA and are in condition for allowance and respectfully request Examiner's determination of same.

Claims 4-6, 8, 12-14, 16, 21-24, 27-30, and 39: These claims stand rejected under rationale similar to that used in Claims 1-2, 18-19, and 25 discussed above; that is, these claims are considered obvious due to an equivalence between a standard STS-9 SONET frame and the non-standard SONET frames disclosed. For the reasons discussed above, Applicants submit that the non-standard SONET frames disclosed in the present Application are not equivalent to a row of a standard STS-9 SONET frame. In light of such a lack of equivalence, Applicants respectfully submit that the purported AAPA does not contain all the limitations of these claims and could not be expected to otherwise successfully function using the non-standard SONET frames disclosed in the present Application.

For these reasons, Applicants submit that Claims 4-6, 8, 12-14, 16, 21-24, 27-30, and 39, and all claims dependent thereon, are distinguishable over the cited AAPA and are in condition for allowance and respectfully request Examiner's determination of same.

Claims 31, 34, 35, 38, 40, 42, 45, 47, 50, 52, 55, and 57: These claims stand rejected for the same reasons set forth in the rejections of Claims 1-6, 8, 10-14, 16, 18-30, 39, 44, 49, and 54. Applicants therefore respectfully submit that, for the reasons

articulated above, these claims are likewise in condition for allowance, and respectfully request Examiner's determination of same.

CONCLUSION

In view of the amendments and remarks set forth herein, the application and the claims therein are believed to be in condition for allowance without any further examination and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned at 512-439-5090.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, COMMISSIONER FOR PATENTS, P. O. Box 1450, Alexandria, VA 22313-1450, on March 7, 2005.

Attorney for Applicant(s) — Date of Signature: 3/7/2005

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